THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

REVISED APPEAL BRIEF FOR THE APPELLANT

In re Application of George HOSHI et al.

FLUID CONTROL DEVICE

Serial Number: 09/893,522

Filed: June 29, 2001

Group Art Unit: 3753

Examiner: John C. FOX

William G. Kratz, Jr.
Attorney for Appellant
Registration No. 22,631

KRATZ, QUINTOS & HANSON, LLP
1420 K Street, N.W., Suite 400
Washington, D.C. 20005
Telephone (202) 659-2930
Fax (202) 887-0357

Date: December 30, 2008
Atty. Docket No. **010846**

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In re the Application of:

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P.T.O. Confirmation No.: **2987**

APPEAL BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Date: December 30, 2008

Sir:

This is in response to a Notification of Non-Compliant Appeal Brief mailed December 4, 2008. This is a revised appeal from the Office Action dated March 17, 2008 in which Claims 1-4 and 35-48 were finally rejected.

A Notice of Appeal was timely filed on September 10, 2008.

This brief contains these items under the following headings, and in the order set forth below:

I. REAL PARTIES IN INTEREST

II. RELATED APPEALS AND INTERFERENCES

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V. SUMMARY OF CLAIMED SUBJECT MATTER

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X. RELATED PROCEEDINGS APPENDIX

I. REAL PARTIES IN INTEREST

The real party in interest are the assignees of the subject application, which are:

TOKYO ELECTRON LIMITED
3-6, Akasaka 5-Chome
Minato-ku
Tokyo, Japan

CKD CORPORATION
250, Ouji 2-Chome
Komachi-shi, Japan

FUJIKIN INCORPORATED
3-2, Itachibori 2-Chome
Nishi-ku
Osaka, Japan

II. RELATED APPEALS AND INTERFERENCES

Appellants know of no other appeals or interference proceedings related to the present appeal.

III. STATUS OF CLAIMS

Claims 1 and 35/1 on appeal are rejected under 35 U.S.C. § 102(b).

Claims 1-4, and 35-48 on appeal are rejected under 35 U.S.C. § 103(a).

Claims 5-34 have been canceled.

IV. STATUS OF AMENDMENTS

No amendments remain to be entered. The last amendment was filed on February 15, 2008, and has been entered.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Independent Claim 1, on appeal, (see especially pp. 25-27 and FIGS. 11-14) is to a fluid control device where a plurality of lines (A, B) each comprise a plurality of fluid controllers (2-14) arranged at an upper level and a plurality of coupling members (21, 22) arranged at a lower level. The plurality of lines (A, B) are arranged in parallel on a base member (91) and have inlets directed in the same direction, with outlets thereof facing toward the same direction. In the fluid control device, the base member (91) has at least one orthogonal rail (92, 93) extending in a direction orthogonal to the line and each line (A, B) is mounted on a respective line supporting rail (96) of a plurality of line supporting rails, and each line supporting rail (96) is slidably mounted on the at least one orthogonal rail (92, 93) relative to other of said line supporting rails, and each line supporting rail (96), when slidably mounted, is slidable in a direction orthogonal to the line along the at least one orthogonal rail (92, 93). The plurality of coupling members (21, 22) is slidably mounted on the line supporting rail (96) in a manner such that each line supporting rail (96) is slidably mounted on the at least one orthogonal rail (92, 93).

Independent Claim 2, on appeal (see especially pp. 25-27 and pp. 15-17, and FIGS. 11-14 and 1-3), is to a fluid control device where a plurality of lines (A, B) each comprise a plurality of fluid controllers (2-14) arranged at an upper level and a plurality of coupling members (21, 22) arranged at a lower level. The plurality of lines (A, B) are arranged in parallel on a base member (91) having at least one orthogonal rail (92, 93) extending in a direction orthogonal to the plurality of lines. The plurality of lines (A, B) have inlets directed in the same direction, with outlets thereof

facing toward the same direction. In the fluid control, each line (A, B) is mounted on a line support member (96) of a plurality of line support members, each line support member (96) is mounted on the at least one orthogonal rail (92, 93), and the line support member is capable of sliding along the at least one orthogonal rail (92, 93) relative to other of said line support members in a direction orthogonal to the line (A, B) after the line support member is mounted on the at least one orthogonal rail (92, 93), wherein each line support member is a line supporting rail (96) removably mounted on the at least one orthogonal rail (92, 93), and the coupling members (21, 22) are slidably mounted on the rail, each of the fluid controllers (2-14) being mounted on two of the coupling members (21, 22).

Independent Claim 3 (see especially pp. 25-27 and 15-17, and FIGS. 11-14 and 1-3), on appeal, is to a fluid control device where a plurality of lines (A, B) each comprise a plurality of fluid controllers (2-14) arranged at an upper level and a plurality of coupling members (21, 22) arranged at a lower level, the plurality of lines (A, B) being arranged in parallel on a base member (91) having at least one orthogonal rail (92, 93) extending in a direction orthogonal to the plurality of lines. The plurality of lines (A, B) have inlets directed in the same direction, with outlets thereof facing toward the same direction. In the fluid control device, the base member (91) is provided with a plurality of tracks (96) arranged in parallel and corresponding to the respective lines, with the plurality of tracks (96) being mounted on the at least one orthogonal rail (92, 93). Each track of said plurality of tracks (96) is slidable along the at least one orthogonal rail (92, 93) relative to other of said tracks in a direction orthogonal to the lines after the tracks are mounted on the at least one orthogonal rail, and

the coupling members (21, 22) are slidably mounted on the corresponding track (96). Each of the fluid controllers (2-14) are mounted on two of the coupling members (21, 22), two of the coupling members are not directly connected to each other so that each coupling member (21, 22) can be fixed at any position of the track independently, and each coupling member (21, 22) has vertical internally threaded portions (25) formed in the upper wall and each of the fluid controllers (2-14) is attached to two of the coupling members (21, 22) by driving screws (26) inserted through the controller into the internally threaded portion (25) of the coupling member (21, 22).

Independent Claim 4 (see especially pp. 25-27 and 15-17, and FIGS. 11-14 and 1-3), on appeal, is to a fluid control device where a plurality of lines (A, B) each comprise a plurality of fluid controllers (2-14) arranged at an upper level and a plurality of coupling members (21, 22) arranged at a lower level. The plurality of lines (A, B) are arranged in parallel on a base member (91) having at least one orthogonal rail (92, 93) extending in a direction orthogonal to the plurality of lines, the plurality of lines (A, B) having inlets directed in the same direction, with outlets thereof facing toward the same direction. In the fluid control device, the base member (91) is provided with a plurality of tracks (96) arranged in parallel and corresponding to the respective lines, the plurality of tracks (96) are mounted on the at least one orthogonal rail (92, 93), each track is slidable along the at least one orthogonal rail (92, 93) relative to other of said tracks (96) in a direction orthogonal to the lines after the tracks are mounted on the at least one orthogonal rail, and the coupling members (21, 22) are slidably mounted on the corresponding track. Each of the fluid controllers (2-14) is mounted on two of the coupling members (21, 22), where slide members (24) corresponding to the

respective coupling members are provided on the track, and each of the slide members (24) is connected to the corresponding coupling member (21, 22). Two of the coupling members (21, 22) are not directly connected to each other so that each coupling member can be fixed at any position of the track independently. Each coupling member (21, 22) has vertical internally threaded portions (25) formed in the upper wall and each of the fluid controllers (2-14) is attached to two of the coupling members (21, 22) by driving screws (26) inserted through the controller into the internally threaded portion (25) of the coupling member (21, 22).

Claims 35-48 are to more specific embodiments of the present invention and are either directly or indirectly dependent upon at least one of independent Claims 1-4.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Whether Claims 1 and 35/1 are unpatentable under 35 U.S.C.§ 102(b) as being anticipated by Johnson (U.S. 6,076,543).

2. Whether Claims 1-4, 35, 37-42 and 44-48 are unpatentable under 35 U.S.C.§ 103(a) as being obvious over Johnson in view of Itoh et al. (U.S. 6,152,175).

3. Whether Claims 36 and 43 are unpatentable under 35 U.S.C.§ 103(a) as being obvious over Johnson in view of Itoh et al. and further in view of Markulec et al. (U.S. 6,231,260).

VII. ARGUMENTS

1. CLAIMS 1 AND 35/1 ON APPEAL ARE NOT UNPATENTABLE UNDER 35 U.S.C.§ 102(b).

With regard to independent Claims 1-4 and claims dependent therefrom, the key isue is what is actually shown, described and taught in the primary reference, Johnson (U.S. 6,076,543). The Examiner has continually alleged "Johnson shows a gas line slidably mounted on a rail (42) and discloses at column 12, lines 18-29 that each rail (42) can be slidably mounted on transverse or orthogonal rails." With regard to Claims 1-4, 35, 37-42 and 44-48, he alleges that Johnson shows the claimed device except for a tubing connecting fluid handling devices. Itoh et al. is cited to show an improvement over tubing connecting devices using coupling blocks (21) for mounting the fluid handling devices, and it is alleged that provision of a spare rail for future use is considered to be an obvious expedient, as is assembling a system as recited in the present claims. He further alleges that Johnson, as modified, shows the claimed device except for the shape of the tracks, Markulec et al. shows a gas stick system with a downward tapered groove and nut (FIG. 6a), and that it would have been obvious to have used such a downward tapered groove and nut in the system of Johnson, as modified.

Applicants respectfully submit that the Office Action is clearly mischaracterizing the Johnson reference teachings. While it is correct that, in Johnson, a gas line is slidable along a track (42) in a direction parallel to the track, there is no support for the allegation that each rail can be slidably mounted on transverse or orthogonal rails. The language in Johnson at column 12, lines 18-29 states that the "gas handling device" is adjustably mounted on rails coupled between adjoining stanchions.

Specifically, Johnson states:

> "It should be understood that an assembly configured for use with an inert or non-hazardous gas would be similar to assembly 118, except the lengths of piping would not need to be doubled-walled piping, and that the supply of process gas and the gas handling devices would not need to be housed in externally vented enclosures. Instead, the invented gas handling device is adjustably mounted on a pair of rails or supports that are coupled between adjacent stanchions 116. Each rail extends transverse to the long axis of device's track and includes a mount or bolt which extends therefrom for insertion through a respective one of track 42's slots 71" (emphasis added)

FIGS. 10 and 11 of Johnson, to which this section refers clearly show no transverse track relationship between line supporting rails or tracks.

It is the entire gas handling device (40 or 118) that may be moved transversely. There is no teaching or suggestion that a line supporting rail of a plurality of line support rails (Claim 1); a line support member of a plurality of line support members (Claim 2); or a track of a plurality of tracks (Claims 3 and 4) can be moved along an orthogonal rail, relative to other such members.

In view of the clear mischaracterization of the Johnson teachings, the 35 U.S.C. § 102(b) rejection of Claims 1 and 35/1, on appeal, should be reversed.

The reference discussed at an interview with Examiner Fox, Vu (U.S. 6,394,138) is not applied against the claims in the Final Office Action. That reference, although not at issue here,

merely shows a single line of components only and not a plurality of lines where inlets are directed in the same direction and outlets facing toward the same direction. The mounting channels (34) of Vu merely secure the entire manifold system to a support surface.

2. CLAIMS 1-4, 35, 37-42 AND 44-48 ON APPEAL ARE NOT OBVIOUS OVER JOHNSON IN VIEW OF ITOH ET AL. UNDER 35 U.S.C.§ 103(a).

The Itoh et al. reference, when combined with Johnson, does not cure the deficiencies of Johnson and would not lead one to the present claimed fluid control device.

The Itoh reference is cited merely to show an improvement over tubing connecting fluid handling devices because, admittedly, Johnson does not teach a tubing connected fluid handling device. While Itoh may show an improved device with coupling blocks (21) for mounting the fluid handling device, it does not cure the defects of the Johnson reference as previously described.

3. CLAIMS 36 AND 43 ON APPEAL ARE NOT OBVIOUS OVER JOHNSON IN VIEW OF ITOH ET AL. AND FURTHER IN VIEW OF MARKULEC ET AL. UNDER 35 U.S.C.§ 103(a).

The Itoh et al. and Markulec et al. references, when combined with Johnson, do not cure the deficiencies of Johnson and would not lead one to the present claimed fluid control device.

The Markulec et al. reference also does not cure the defects of the Johnson-Itoh et al. combination. Markulec is cited merely to show a gas stick system with a downward tapered groove and nut. This is not sufficient to render Applicants' Claims 36 and 43 obvious.

For the above reasons, The Board of Patent Appeals and Interferences is respectfully requested to reverse all of the Examiner's rejections of Claims 1-4 and 35-48 on appeal, and pass this application to issue.

In the event this paper is not timely filed, Appellant hereby petitions for an appropriate extension of time. The fee for any such extension may be charged to our Deposit Account No. 01-2340, along with any other additional fees which may be required with respect to this paper.

Respectfully submitted,

KRATZ, QUINTOS & HANSON, LLP

William G. Kratz, Jr.
Reg. No. 22,631

WGK/ak
Atty. Docket No. **010846**
Suite 400
1420 K Street, N.W.
Washington, D.C. 20005
(202) 659-2930

23850
PATENT TRADEMARK OFFICE

Enclosures: Claims Appendix
Evidence Appendix
Related Proceedings Appendix

VIII. CLAIMS APPENDIX

Claim 1: A fluid control device wherein

a plurality of lines each comprise a plurality of fluid controllers arranged at an upper level and a plurality of coupling members arranged at a lower level,

the plurality of lines being arranged in parallel on a base member and having inlets directed in the same direction, with outlets thereof facing toward the same direction,

the fluid control device being characterized in that the base member has at least one orthogonal rail extending in a direction orthogonal to the line and each line is mounted on a respective line supporting rail of a plurality of line supporting rails,

each line supporting rail being slidably mounted on the at least one orthogonal rail relative to other of said line supporting rails,

each line supporting rail, when slidably mounted, being slidable in a direction orthogonal to the line along the at least one orthogonal rail,

the plurality of coupling members being slidably mounted on the line supporting rail in a manner in which each line supporting rail is slidably mounted on the at least one orthogonal rail.

Claim 2: A fluid control device wherein

a plurality of lines each comprise a plurality of fluid controllers arranged at an upper level and a plurality of coupling members arranged at a lower level,

the plurality of lines being arranged in parallel on a base member having at least one orthogonal rail extending in a direction orthogonal to the plurality of lines, the plurality of lines

having inlets directed in the same direction, with outlets thereof facing toward the same direction,

the fluid control device being characterized in that each line is mounted on a line support member of a plurality of line support members,

each line support member being mounted on the at least one orthogonal rail, the line support member being capable of sliding along the at least one orthogonal rail relative to other of said line support members in a direction orthogonal to the line after the line support member is mounted on the at least one orthogonal rail, wherein

each line support member is a line supporting rail removably mounted on the at least one orthogonal rail, and

the coupling members are slidably mounted on the rail,

each of the fluid controllers being mounted on two of the coupling members.

Claim 3: A fluid control device wherein a plurality of lines each comprise:

a plurality of fluid controllers arranged at an upper level and a plurality of coupling members arranged at a lower level,

the plurality of lines being arranged in parallel on a base member having at least one orthogonal rail extending in a direction orthogonal to the plurality of lines, the plurality of lines having inlets directed in the same direction, with outlets thereof facing toward the same direction,

the fluid control device being characterized in that the base member is provided with a plurality of tracks arranged in parallel and corresponding to the respective lines,

the plurality of tracks being mounted on the at least one orthogonal rail, each track of said plurality of tracks being slidable along the at least one orthogonal rail relative to other of said tracks

in a direction orthogonal to the lines after the tracks are mounted on the at least one orthogonal rail,

the coupling members being slidably mounted on the corresponding track,

each of the fluid controllers being mounted on two of the coupling members,

two of the coupling members are not directly connected to each other so that each coupling member can be fixed at any position of the track independently, and

each coupling member has vertical internally threaded portions formed in the upper wall and

each of the fluid controllers is attached to two of the coupling members by driving screws inserted through the controller into the internally threaded portion of the coupling member.

Claim 4: A fluid control device wherein a plurality of lines each comprise:

a plurality of fluid controllers arranged at an upper level and a plurality of coupling members arranged at a lower level,

the plurality of lines being arranged in parallel on a base member having at least one orthogonal rail extending in a direction orthogonal to the plurality of lines, the plurality of lines having inlets directed in the same direction, with outlets thereof facing toward the same direction,

the fluid control device being characterized in that the base member is provided with a plurality of tracks arranged in parallel and corresponding to the respective lines,

the plurality of tracks being mounted on the at least one orthogonal rail, each track being slidable along the at least one orthogonal rail relative to other of said tracks in a direction orthogonal to the lines after the tracks are mounted on the at least one orthogonal rail,

the coupling members being slidably mounted on the corresponding track,

each of the fluid controllers being mounted on two of the coupling members, wherein

slide members corresponding to the respective coupling members are provided on the track, each of the slide members being connected to the corresponding coupling member,

two of the coupling members are not directly connected to each other so that each coupling member can be fixed at any position of the track independently, and

each coupling member has vertical internally threaded portions formed in the upper wall and each of the fluid controllers is attached to two of the coupling members by driving screws inserted through the controller into the internally threaded portion of the coupling member.

Claim 35: A fluid control device according to claim 1, 2, 3 or 4 wherein

the base member is shaped in the form of a frame by an inlet-side rail, an outlet-side rail and connecting members interconnecting the side rails.

Claim 36: The fluid control device according to claim 1 or 2, wherein the line supporting rail comprises two shape members each having a groove and being arranged side by side, each of the shape members forms the groove between two inward flanges, the groove has a downwardly tapered trapezoidal cross section, and a slide member having a downwardly tapered trapezoidal cross section and a vertical internally threaded portion is provided in the line support member and is connected to one of the coupling members by a screw member.

Claim 37: The fluid control device according to claim 1, 2, 3 or 4 wherein a plurality of lines comprise a spare line and only a line supporting rail is provided for the spare line.

Claim 38: A fluid control device according to claim 1 or 2 wherein the device is assembled by attaching each line supporting rail having coupling members and fluid controllers mounted thereon to the base member.

Claim 39: A fluid control device according to claim 1 or 2 wherein lines are modified by removing channel connecting means upward as required, then removing the old line to be modified as mounted on the line supporting rail, slidingly moving the line supporting rails of the lines not to be modified when so required, mounting on the base member the line supporting rail of the line to be substituted, further slidingly returning the line supporting rails of the lines not to be modified to the proper position, and finally installing channel connecting means as required for modification.

Claim 40: A fluid control device according to claim 1 or 2 wherein lines are installed by removing channel connecting means upward as required, slidingly moving the line supporting rails of the existing lines as required, mounting on the base member the line supporting rail of the line to be added, further slidingly returning the line supporting rails of the existing lines to the proper position, and finally installing channel connecting means as required for addition.

Claim 41: The fluid control device according to claim 4, wherein the slide member has an axial length smaller than end-to-end distance between the inward flanges of each of the shape members.

Claim 42: A fluid control device according to claim 1, 2, 3, or 4 wherein

a clearance for inserting a tool therethrough for rotating the screw member is formed between each adjacent pair of the fluid controllers.

Claim 43: The fluid control device according to claim 3 or 4, wherein each one of the tracks comprises two shape members each having a groove and being arranged side by side, each of the shape members forms the groove between two inward flanges, the groove has a downwardly tapered trapezoidal cross section, and a slide member having a downwardly tapered trapezoidal cross section and a vertical internally threaded portion is provided in the track and is connected to one of the coupling members by a screw member.

Claim 44: A fluid control device according to claim 1 or 2 wherein the fluid controller can be replaced by one having a different length by removing the fluid controller to be replaced, moving the coupling member along the line supporting rail to the required position, fixing the coupling member to the line supporting rail, and mounting the substitute fluid controller on the coupling members concerned.

Claim 45: A fluid control device according to claim 1 or 2 wherein an additional fluid controller and an additional coupling member can be installed in the existing line by removing a fluid controller adjacent to the additional fluid controller, moving the coupling member adjacent to the additional coupling member along the line supporting rail to the required position, fixing the additional coupling member to the line supporting rail, and mounting the additional fluid controller on the coupling members concerned.

Claims 46: A fluid control device according to claim 4 wherein

each of the tracks is provided by a line supporting rail removably mounted on the base member.

Claim 47: A fluid control device according to claim 1, 2 or 46 wherein

the line supporting rail is U-shaped in cross section and has inward flanges, and a slide member having an internally threaded portion and provided in the rail is connected to the coupling member by a screw member.

Claim 48: A fluid control device according to claim 1, 2 or 46 wherein

the line supporting rails are connected to one another by a connecting member.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.